

## **WATER RESEARCH, ELECTRONIC JOURNALS AND DATABASES: THE SOUTH AFRICAN WAY**

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**ABSTRACT:** In South Africa, the Water Research Commission (WRC) was established to promote, coordinate and fund water-related research. The organization derives its income from a levy on water consumption and uses the money to fund a variety of research projects annually. This paper gives an overview of the activities of the organization and provides details of WRC products and publications.

### **Introduction**

South Africa is a water-scarce country and a lack of sufficient water supplies has been identified as the single most important factor which will limit the country's socio-economic development in the 21<sup>st</sup> century. The average annual rainfall is 483 mm (compared to the annual world average of 860 mm), rainfall is unevenly distributed, evaporation rates are high, and extended and severe droughts occur regularly. Projections indicate that the country will experience a serious decline in the availability of fresh water between now and the year 2050. Absolute shortages already occur in some regions, with the result that various large inter-basin water transfer schemes have already been constructed.

The country is also poorly endowed with suitable aquifers, with groundwater forming only about 15 % of the country's water supplies. Water supply is, therefore, mainly dependent on surface supplies, which are subject to huge evaporation losses. To further complicate the situation, severe pollution problems, associated with a high rate of population growth and sustained industrial, mining and agricultural development, exist.

Against this background, and following a severe drought in the sixties, a commission of enquiry into water matters was appointed. In its report, the Commission emphasized the important role that research will have to play in optimizing water management in South Africa, and recommended that water research should be intensified and better coordinated. The Water Research Commission (WRC) was established in 1971 and the

organization was tasked to promote the coordination, communication and cooperation in the field of water research.

### **The WRC in action**

The WRC derives income from levies on water consumption. The organization does not conduct its own research, but funds research under contract with other agencies, e.g. universities, statutory research organizations, local authorities, consultants, water boards, government departments, non-government organizations and industry. Research applications from such institutions are received and evaluated once a year, a total of 250 to 300 ongoing and new projects being funded annually by the WRC.

The WRC's research programme covers the following research fields:

1. Developing communities: water supply and sanitation
2. Potable water supply
3. Municipal wastewater management
4. Water quality management
5. Groundwater
6. Agricultural water management
7. Industrial water management
8. Membrane technology
9. Hydroclimatology
10. Integrated water resource management
11. Surface hydrology
12. Conservation of water ecosystems
13. Mine water management
14. Water policy
15. Hydraulics
16. Information technology and research support services

### **Transfer of information and technology**

In accordance with its mission statement, the WRC undertakes to *Promote effective transfer of information and technology*. In order to fulfil this responsibility, the following actions were taken:

1. A bibliographic database, *Waterlit*, started in 1974, covers references to local and international publications on all aspects of water. At present, the database covers more than 300 000 references to journal articles, reports, conference proceedings, books, etc. A special *Waterlit* thesaurus with more than 30 000 terms and phrases is used to describe the contents of publications for inclusion into the database. *Waterlit* does not include abstracts, but uses an extensive system of identifiers and descriptors to describe the contents of individual publications. Most of the publications (95%) listed in the database are available in South Africa and every entry indicates the

holding library of the specific publication. The CD-ROM version of the database is published commercially by NISC.

2. All **project reports** resulting from research projects funded by the WRC are published for wider distribution. Most reports are available at no cost to South African residents while a small amount is charged when reports are supplied to international clients.
3. Two journals are published regularly:
  - \* **Water SA** is the WRC's accredited scientific journal, which contains original research articles and review articles on all aspects of water science, technology and engineering. The journal provides a forum for South African scientists and engineers to introduce their research results nationally and internationally. In recent years, the journal also had increased support from overseas authors and readers from as far afield as the Ukraine, Spain, Argentina, Finland, Australia, etc.
  - \* The **SA Waterbulletin** is a bi-monthly news journal, aimed at promoting the transfer of technology by announcing the availability of reports, manuals, guides, etc. that emanate from WRC sponsored research.
4. The WRC develops and maintains a database of water and water-related **research projects conducted in South Africa**. The information is intended for research organizations and scientists who are active in these fields. The database enables better planning of projects, avoids unnecessary duplication and increases awareness of current research.

#### **Electronic information**

The arrival of the age of electronic information offered the opportunity to market and distribute the information resources developed by the WRC globally:

1. The **Waterlit** bibliographic database is now accessible via the WRC's web site. Free access is available to all South African residents, while users in the rest of the world have to subscribe on an annual basis.
2. Free web access to a list of available WRC project reports, together with the facility to use an electronic order form.
3. Free web access to the full text version of the SA Waterbulletin.
4. Free web access to abstracts of articles published in Water SA, together with the facility to download the full article.
5. Free web access to the database on water-related projects undertaken in South Africa.

**Conclusion**

South Africa is a developing country, experiencing water-related problems which are similar to those in the rest of Africa. Through the active involvement of the Water Research Commission, South African water managers can now make strategic decisions, based on sound research results.